Bios

The Biology Department Newsletter
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California State University Northridge

California State University, Northridge

Biology Department Adds Three New Faculty Members

Dr. Maria Elena de Bellard: Physiologist

Dr. Maria Elena de Bellard, a Venezuelan by birth, comes to us with a wealth of research on the nervous system. She will be responsible for overseeing Biology's Human Physiology courses; consequently, her initial teaching assignment is Human Physiology.

De Bellard was introduced to science at an early age by her father, a well-known explorer and speleologist (cave expert). She says, "He imbued in his children a deep love for nature and its mysteries."

De Bellard attended University Simon Bolivar in Caracas, known for its research training and for its strength in the sciences. There she did an undergraduate thesis on memory consolidation in crickets.

Subsequently, de Bellard went to the Institute of Clinical Investigation in Maracaibo, where she worked for four years as an assistant on a project looking at muscarinic (smooth-muscle stimulating) receptors in rat brains after viral equine encephalitis. During this period, she realized she wanted an academic career and would need to earn a Ph.D.

In pursuit of her doctorate, de Bellard entered Hunter College

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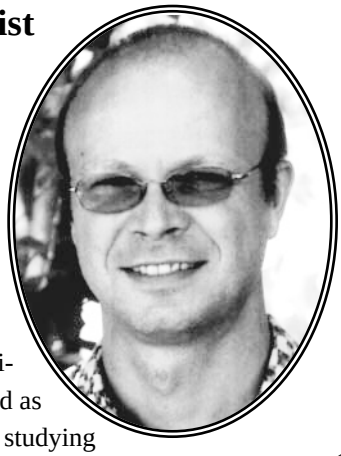
Dr. Tim Karels: Ecologist



After an extended visit with U.S. Customs and Border Protection on his way down from Canada, **Dr. Tim Karels** joins the Biology Department this fall, with Principles of Ecology as his first teaching assignment.

Karels got hooked on ecological research as an undergrad at the University of Toronto where he worked as an assistant for Dr. Rudy Boonstra studying arctic ground squirrels in the Yukon. After another assistantship working on Goldeneye ducks, he returned to Boonstra's lab to do his M.S.

The ground squirrel study was part of the collaborative Kluane Boreal Forest Project, a ten-year study of the community structure of the boreal forest, the world's largest terrestrial biome. Says Karels, "You might have heard of the decadal population cycle of snowshoe hares. The population dynamics of this one species has profound effects on both its food supply and its predators." Indeed, Karels' research demonstrated the indirect effects that hares have on other herbivores, such as the arctic

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Dr. Cindy Malone: Geneticist

Dr. Cindy Malone joins the full-time Biology faculty this fall, having taught on a part-time basis last year. She is scheduled to teach courses in genetics and immunology in the future, but this semester is teaching just introductory biology, enabling her to take a six-week maternity leave following the birth of a daughter, Lily, on September 6.

Malone earned her B.S. from Illinois State University, where she majored in the Biological Sciences, a program that provided "a very broad education in all aspects of biology, from ecosystems to genes." Her Ph.D. was in Microbiology and Immunology at UCLA, and she continued working there for several years as a postdoctoral fellow while taking on a series of part-time teaching posts at the University of Redlands, UCLA, and CSUN.

Malone's research has focused on how genes are regulated in the immune system, in both normal gene silencing during development and in aberrant gene silencing that occurs in diseases such as cancer and AIDS.

In explaining her work, she makes the distinction between genetic and epigenetic factors that determine whether genes

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New Publications by Biology Faculty and Their Students*

Dr. **Paula Schiffman** recently published a historical reconstruction of the Los Angeles prairie ecosystem as a chapter in a book, "Land of sunshine: An environmental history of metropolitan Los Angeles." Schiffman's work is also featured in a permanent art exhibit in an outdoor patio at Los Angeles' Marvin Braude Constituent Center next to the courthouse in Van Nuys. This work of public art was created by CSUN art professor Kim Abeles. One never knows where biological research results will appear!

Dr. Mike Summers and **Claudia Argueta** have a paper entitled "Characterization of a model system for the study of *Nostoc punctiforme* akinetes" in *Archives of Microbiology*.

Biological Conservation has published a paper by **Jake Kerby** (now in a Ph.D. program at UC Davis), Seth Riley, Lee Katz, and **Dr. Paul Wilson**, "Barriers and flow as limiting factors in the spread of an invasive crayfish (*Procambarus clarkii*) in southern California streams."

Dr. Robert Espinoza is an author with three others of "The importance of phylogenetic scale in tests of Bergmann's and Rapoport's rules: lessons from a clade of South American lizards" in *Journal of Evolutionary Biology*.

The *Bulletin of the Southern California Academy of Sciences* has published "Color patterns and associated behaviors in the kelp bass, *Paralabrax clathratus*" by **Brad Erisman** (now in Scripps' Ph.D. program) and **Dr. Larry Allen**, and "The reef fish assemblage of the outer Los Angeles Federal Breakwater, 2002-2003" by **John Froeschke**, Allen, and adjunct professor **D. J. Pondella.**

From the polyp lab, **Dr. Peter Edmunds** has a paper in *Oecologia*, "The effect of sub-lethal increases in temperature on the growth and population trajectories of three scleractinian corals on the southern Great Barrier Reef." In addition, Edmunds, D. F. Gleason, and adjunct professor **Ruth Gates** have a paper in *Marine Biology*, "Ultraviolet effects on the behavior and recruitment of larvae from the reef coral *Porites astreoides*." And grad student **Robin Elahi** has one in *Journal of Insect Science*, "The effect of water on the ground nesting habits of the giant tropical ant, *Paraponera clavata*." Hey, ants are not corals!

Janna Fierst, **Casey Terhorst** (both now working on Ph.D.s at Florida State), **Drs. Steve Dudgeon** and **Janet Kübler** have a paper in *Journal of Phycology*, "Fertilization success can drive patterns of phase dominance in complex life cycles." This paper was the outcome of a spontaneous collaboration (in addition to the grad students' theses) modeling the effect of fertilization rate on the relative abundance of gametophyte and sporophyte generations of benthic macroalgae. Dudgeon also published two papers with Peter Petraitis (Penn) resulting from their work in Maine: "Early life demography of a foundation species and the community-level implications" in *Oikos*; and "Divergent succession and implications for alternative states on rocky intertidal shores" in *Journal of Experimental Marine Biology & Ecology*.

There are two new papers in *Acta Histochemica* from CSUN. "Direct targeting of cancer cells: a multiparameter approach," co-authored by students **Eileen Heinrich** and **Lilyanne Welty** and **Drs. Lisa Banner** and **Steve Oppenheimer**, develops new approaches in the quest for more specific anti-cancer drugs. "A novel approach to study adhesion mechanisms by isolation of the interacting system," by **Drs. Cathy Coyle-Thompson** and **Steve Oppenheimer**, describes a novel approach to study cell adhesion mechanisms in pristine environments.

Dr. Jennifer Matos has a paper in *Herpetological Review*, "San Juaquin racer cannibalism." Gives us the willies!

Dr. Larry Baresi's interest in bioengineering recently culminated in a paper with Dr. Richard Weisbart of the V.A. Medical Center, "An intracellular delivery vehicle for protein transduction of microdystrophin" in *Journal of Drug Targeting*.

* Readers will find full citations & often PDFs at *www.csun.edu/biology/faculty*.

Biology Students Honored

Each year, various University units, including the Biology Department, recognize and honor graduating students with stellar academic records.

Winners of the Biology Department's 2005 awards were: •**Daniel Nelson** and **Jared Thurston**, who shared the Biology Prize for Outstanding Graduating Seniors; •**Diego Sustaita**, who earned Biology's Outstanding Graduate Student Award; •**Karina Garcia**, winner of the Bennett-Bickford Award recognizing an academically promising student headed toward a teaching career; and •**Julieta Aguilar**, recipient of the Department's Hugo and Irma Oppenheimer Award.

The College of Science and Mathematics also offers a Hugo and Irma Oppenheimer Award, which this year went to Biology graduate student **Kamelia Fallahpour**. Another graduate student, **Diana Andres** won the Association of Retired Faculty's Outstanding Graduate Student Award.

Research Talks and Posters Presented at National Meetings

At the meeting of Ichthyologists and Herpetologists, **Diana Andres** gave a talk entitled, "The grass *is* greener: costs of diet switching may inhibit insect eating by herbivorous lizards," and it won the Henri Seibert Award for Best Student Oral Presentation in Physiology/Morphology ($200). Three students from **Dr. Larry Allen's** fish lab presented posters: •**Chris Chabot** on "Population genetics of the tope shark in response to California fishery pressure"; •**Brent Haggin** on "Aspects of the life history of the brown smoothhound from southern California"; and •**Jonathan Williams** on "Otolith structure and the age and growth of juvenile white seabass." All of the students received travel funds from the Depart-

ment, the College, and the Office of Graduate Studies.

At the American Ornithologists Union meeting, **Diego Sustaita** presented part of his thesis "Killing forces of North American accipiters and falcons: musculo-skeletal underpinnings to differences in foraging behavior."

At the Experimental Biology 2005 meeting, **Dr. Randy Cohen's** graduate student, **Brandie Cross**, presented a poster, "Altered hemolymph levels of free amino acids modifies nutrient self-selection in the cockroach *Rhyparobia maderae*." And there were five posters from **Dr. Steve Oppenheimer's** lab: "Saccharide inhibition of immobolized cancanavalin A-cell binding"; "Quantitative evaluation of pH influence on immobolized lectin binding properties"; "Protein constituents in sea urchin disaggregation supernatant"; "A microdissection method to study cellular interactions in the sea urchin embryo"; and "Effects of lectins on viability of human colon cell lines: a multiparameter approach." In addition to Oppenheimer, **Drs. Cathy Coyle-Thompson** and **Lisa Banner** were co-authors on one or more of the papers. Also co-authors on the posters were: K-12 teachers **Astrid Hernandez** and **Greg Zem**; CSUN students **Maribel Alvarez**, **Oliver Badali**, **Joanna Barron**, **Evelen Bermudez**, **Azalia Contreras**, **Jerilyn Datu**, **Melika Eskalaei**, **Linda Esmaili**, **Ashanti Franklin**, **Karina Garcia**, **Maria Gaytan**, **Marine Hakopyan**, **Eileen Heinrich**, **Hesam Hekmatjou**, **Tuyen Huynh**, **Mo Khaleghimoghadam**, **Maria Khurrum**, **Victor Meier**, **Alexandra Mokhnatkina**, **Johanna Perez**, **Laenni Ricafort**, **Nicole Sansone**, **Donna Trafton**, **Ludivina Vazquez**, **Lilyanne Welty**, and **Maral Ziafathy**; and high school students **Ben Bradbury** and **Brittany Low.**

The CSUN marine biology group was well-represented at the Benthic Ecology meetings. Papers were presented by **Dr. Robert Carpenter** claiming "Caribbean-wide recovery of the echinoid *Diadema antillarum* promotes recruitment of scleractinian corals" and the following graduate students: •**Kylla Benes** on "Effects of *Eisenia arborea* on patterns of recruitment and settlement of understory algal species"; •**Annaliese Hettinger** on "The role of hydrodynamics in the structure and function of shallow-subtidal communities"; •**Kathy Morrow** saying "Competitive interactions between the sea anemone *Corynactis* and benthic algae are mediated by light and water flow in a kelp forest habitat"; and •**Robin Elahi** on "The effects of age and size on the physiology of a scleractinian coral." Posters were given by •**Stephanie Talmage** on "Effects of productivity potential, hydrodynamic stress, and herbivory on resource allocation by subtidal macroalgae"; •**Eliza Moore** on "Morphology and growth of *Porites compressa* in two flow regimes"; and •**Rebecca Kordas** on "Analysis of per capita interaction strength between rockweeds and barnacles along a latitudinal gradient."

Casey Terhorst presented his Master's thesis research at the Ecological Society of America meeting.

For the Physiological Ecology retreat held at the White Mountain Research Station, a talk was presented "Sex, lipids, and thermoregulation: what's the connection?" authored by **Dr. Robert Espinoza**, students **Hector Godoy**, **Sarah Kamsheh**, **Dr. Eugene Williams**, and **Dr. Dave Gray**. In addition, Espinoza gave talks to the Joint Sciences Department of Claremont College and the Department of Biology at the University of New Mexico, "Small, cold-climate lizards break the 'rules' of herbivory in reptiles."

Faculty Share Expertise

Dr. Steve Dudgeon attended the 4th CORONA conference in France. The goal of this year's meeting was for collaborators to synthesize into manuscripts current knowledge on the history and present state of the North Atlantic Biota, and to highlight issues pertaining to its future.

Dr. Paula Schiffman gave a presentation about the environmental history of the Los Angeles area to the Sierra Club at the Los Angeles Zoo in Griffith Park.

Dr. Dave Gray attended the 9th International Conference of the Orthopterists' Society in Canmore, Alberta.

Do Prerequisites Matter? A Commentary

—Dr. Maria Elena Zavala

Have you ever wondered why the catalog designates prerequisites for courses and why the faculty insist that students take courses in sequence? After a careful study, we can now give you a definitive answer.

For the past four years the NIH minority programs have partially funded the Biology Advisement center, and it has kept records of student visits, the advice each student was given and whether he or she followed that advice. Of particular interest was the academic performance of students who, contrary to advice, took courses out of sequence, attempting, for example, Cell Biology (BIOL 380) before completing Organic Chemistry (CHEM 333).

What we learned is this: *Students who take courses in the correct sequence earn significantly higher GPAs than do those who take courses without completing the prerequisites! Moreover, because they do better, students who follow the correct sequence less frequently repeat courses.* None of this should be particularly surprising since each prerequiste provides background necessary to fully understand the materials in the subsequent course.

Hence, if you want to have that edge for graduate or professional school, I have some advice: Take your courses in the recommended sequence! Doing so will not only increase your GPA but will also help decrease your time to graduation!

Daniel Green is an undergraduate student working in Dr. Peter Edmunds' laboratory. The editors encourage all students who have had interesting professional experiences to consider writing articles for future issues of Bios.

In This Land of Fun and Sun…

—by Daniel Green

On a hot summer afternoon in the San Fernando Valley, I finish up the last-minute packing before my airport shuttle speeds me off to LAX. After a semester of independent studies with Dr. Edmunds analyzing data from photos, I'm ready to see corals in the flesh.

The flight is a red-eye. After six hours, I step off the plane in the U.S. Virgin Islands and am startled by my first breath of the hot humid air of the Caribbean. Then there's an hour on a long and curvy road, and still more time on a very rugged dirt road whose few paved portions are at a 45° angle and can only be negotiated by a vehicle with four-wheel drive. Finally, I'm at the Virgin Islands Environmental Resource Station (VIERS), my home for the next month.

My project is to analyze and compare present-day population dynamics of the coral *Porites astreoides* with historical data. *P. astreoides* has been a part of the Caribbean reefs for all of recorded history, but in recent years, as other coral species have died out, it has become even more prevalent, possibly due to its ability to withstand harsher environmental conditions such as increased water temperature.

Having never been in the field, or the tropics for that matter, I'm not quite sure what to expect. All of the VIERS buildings are open-air cabins, their walls made of screens in lieu of air conditioning. Because the only fresh water is what can be collected from the rain gutter, showers are kept to a maximum of three minutes. Toilet paper is not flushed down the toilets (perhaps a general eco-friendliness).

About two-thirds of the island of St. John is managed by the National Park Service, and within the park is the Biosphere Reserve of St. John, which protects both terrestrial and aquatic ecosystems, such as coral reefs and mangroves. Lameshur Bay, a horseshoe-shaped bay consisting of several local reefs and a mangrove swamp, relies heavily on the mangrove swamp for transfer of nutrients and processing of runoff. The swamp also supports swarms of mosquitoes that ravage everyone despite generous application of insect repellant. And voracious sand fleas wait for us on the dock at the end of each day of diving.

This is Dr. Edmunds' 19th consecutive year gathering data on the reefs in and around Lameshur Bay. The focus of the work is to determine how the coral reefs have changed over the decades. The research includes simple population dynamic surveys, such as scoring percent cover in permanent quadrats, but also involves following changes in community structure including the recruitment and growth of juvenile corals.

A large portion of my trip is dedicated to measuring the growth rates of juvenile corals identified to species. To do this, we measure the juvenile corals and mark each one with an aluminum tag. Next year they can be found using a metal detector and re-measured. Juvenile coral growth rates will then be related to such things as water temperature and turbidity for each species. I'm spending a lot of time trying to get the identifications right.

I am given what is referred to as "on-the-job training." This consists of learning sampling methods such as random quadrat surveys, using a slack chain to measure substratum heterogeneity, and determining the size of corals in various ways. Other activities include cleaning the boats, constructing the moorings, and engine maintenance.

We're down, now, to the last two dives of the trip. Everyone has been able to accomplish everything they had to do, and my project—measuring growth rates of juvenile corals on granite versus limestone—is going to get its moment of glory. Observations suggest that granite absorbs more heat than limestone, so I hypothesize that growth rates of juvenile corals will be higher on granite than on limestone.

After a month of sweating in the smelly mangrove swamp, being eaten alive by mosquitoes, and living by the motto "in this land of fun and sun, we do not flush for number one," it is sad to return to civilization, but it is time. Infected and oozing wounds from urchin stings, fire coral runins, and insect-bites need care. Hurricanes have to be dodged, and classes are looming.

I'm back in L.A., enriched with newfound knowledge of Caribbean coral biology, honed coral identification skills, and the ability to use basic field sampling skills. But the experience was more than the acquisition of information. It also permitted my plans for the future, like grad school, to take shape, and an eventual career in the National Park Service has become a definite option.

College Hosts Poster Symposium

On May 14, 2005, the College of Science and Math hosted the 2005 K-12 student research poster symposium in the Grand Salon. The event, at which about 100 K-12 students presented their research in poster form and received medals for their participation, was organized by **Dr. Steve Oppenheimer**. Many parents and teachers also attended, and the teachers were honored. Says Oppenheimer, "The security of the United States is dependent on producing top creative scientists. We begin to develop such people very early in their careers...in the K-12 classroom."

The work of these and many other K-12 student researchers is showcased each year in the *Journal of Student Abstracts.* Volume 10 of the journal, edited by Oppenheimer, has recently been published.

Students and Faculty Receive Grants and Scholarships

Graduate students **Julia Martin** and **Jolene Pucci** were awarded Sally Casanova California Pre-doctoral Scholarships. Only 74 of these prestigious awards were given statewide. The funding will support the completion of their thesis research and will pay for travel to visit universities with Ph.D. programs that they are considering.

Drs. Steve Oppenheimer, **Gini Vandergon** and **Gerry Simila** (Geoscience) were awarded $52,500 from the Office of the President of the University of California (not the CSU) for their California Science Project. It provided summer 2005 workshops for K-12 teachers.

Several graduate students received funds to support their thesis studies. **Tarja Sagar** received from the National Park Service a $4,900 grant to support her floristic studies of mosses in the Santa Monica Mountains. **Nikki Osborn** received $13,000 from the Mediterranean Learning Resource Center for her work on bobcat population genetics in the Santa Monica Mountains. **Robin Elahi** and **Kylla Benes** were awarded graduate student fee waivers for fall 2005. **Diego Sustaita** earned $2,500 from the Los Angeles Audubon Society and **Kathy Morrow** received a PADI Foundation grant of $3,300 to support their research.

Drs. Robert Espinoza and **Dave Gray** received mini-grants from the Research, Scholarship, and Creative Activity competition. Gray also received a mini-grant from the Science and Math competition.

Dr. Peter Edmunds was awarded a $6,000 REU supplement from the National Science Foundation. This award allowed **Daniel Green** to complete the AAUS diving class at Santa Catalina Island and to spend a month in St. John, U.S. Virgin Islands (see Student's Forum).

Undergrad **Olena Filatova** received an Associated Students Scholarship for $1,500. This is her second year at CSUN.

Undergraduate **Stacy Krueger** was recognized as a Presidential Scholar in the

Research on Benthic Marine Life Expands

CSUN's Marine Biology research circles the globe, with students and faculty regularly investigating marine life in exotic places. Below is a survey of on-going projects.

Caribbean

In July and August, **Dr. Peter Edmunds** completed his 19th year of continuous research on the shallow coral reefs of St. John, US Virgin Islands. Graduate students **Mai Maheigan**, **Robin Elahi** and **Hollie Kerr** all assisted with the research, aided by CSUN undergrad and go-fer **Danny Green**. Also participating in the research were **Dr. Steven Dudgeon** and **Craig Diddon**, a local high school teacher. Diddon spearheaded the outreach portion of the research, allowing the team to work on educational objectives with local K-12 groups. This was Dudgeon's first trip to St. John where he assisted with the research and developed collaborative projects to be used to compete for more funding.

French Polynesia

The first year of Long-Term-Ecological-Research (LTER) on the reefs of Moorea near Tahiti was initiated in January and continued with additional fieldtrips in April, May and June. **Dr. Robert Carpenter's** research team included **Stephanie Talmage** (grad student), **Mike Murray** (technician), and **Melissa Spitler** (research assistant). Says Carpenter, "The team made nearly 50 dives to establish study sites and collect data on reef algal community structure and herbivore abundance."

Talmage spent six weeks initiating the experimental setup and collecting data for her Master's thesis on the trade-offs made by a common alga subject both to gradients in hydrodynamic forces and herbivory. Despite flight delays due to cyclones and setbacks due to 20-foot waves breaking on the reef, and an attempted predation event (a moray eel bit Spitler's hand), the work was successful and will form the foundation for annual monitoring efforts.

In April, Edmunds completed a six-week stint in Moorea, where he began establishing research sites for coral study. Accompanying him on this trip were grad student **Mai Maheigan**, grad student to-be **Hollie Kerr**, and technician **Mike Murray**. In addition to assisting with the LTER's field work, Maheigan completed a portion of her M.S. research and Kerr used the opportunity to learn about the South Pacific ecosystem with a view to starting graduate work next year.

Santa Catalina Island

Graduate students **Kylla Benes, Annaliese Hettinger,** and **Kathy Morrow** spent much of the summer at the USC Wrigley Marine Science Center at Santa Catalina Island collecting data for their respective research projects. Benes is investigating the effects of a kelp canopy on algal settlement, recruitment and community development. Hettinger is studying the role of wave energy in establishing both resource forcing and predation mitigation of shallow benthic communities. Morrow focused on interactions between a common sea anemone that she says "is the cutest thing you've ever studied" and benthic algae.

Hawaii

This past summer Carpenter continued his research, funded by the NSF and NIH-SCORE programs, on the effects of hydrodynamics on coral reef communities in Hawaii. He was assisted by grad students Hettinger and Morrow who took time out from their work on Catalina to travel to assist with this project at the Hawaii Institute of Marine Biology.

CSUN Scholars Program. This scholarship, one of seven given during 2005-2006, is one of the highest achievement awards for undergraduate students at the University. Presidential Scholars work on a research project with a faculty member and must maintain their record of academic excellence in the classroom. Krueger's research with **Dr. Steve Dudgeon** is aimed at determining if the physiological mechanisms that regulate development of hydrozoan vascular tissue represent evolutionarily conserved features of vascular development among metazoans. A CSUN Research Competition Grant awarded for 2005-2006 to Dudgeon also funds her work.

The research of grad student **Rebecca Kordas** with Dudgeon was recognized this past spring by the University of Maine's Darling Marine Center, one of the nation's pre-eminent marine laboratories. Following a nationwide competition among doctoral and Master's students, Kordas was awarded the Addison E. Verrill Visiting Graduate Student Fellowship. Says Dudgeon, "Rebecca's award of this merit-based fellowship is further distinguished by her being the first recipient of the award." Along with the prestige of the award came $3,400 for lab space, housing and supplies.

Reminders from the Advisement Center

Advisement Center hours

Students are invited to stop by the Biology Advisement Center (EH 2133) to have academic questions answered. Faculty advisors **Drs. John Kontogiannis** and **Joyce Maxwell** are assisted this semester by three graduate students, **Bridgette Nace**, **Ziba Razinia** and **Robert Nohavandi.** The Center is open for about 35 hours each week; hours are posted outside the door.

Biology advisement for spring

Before enrolling for spring semester 2005, all Biology students must seek advisement. Only then will SOLAR allow them to register. Students can avoid long lines by visiting the Advisement Center now to have their proposed program approved and a green slip signed.

Upper-division Writing Exam required for graduation!

The Upper Division Writing Proficiency Exam must be attempted no later than the semester in which 90 units are completed. Students planning to graduate in spring 2006 must pass the exam no later than April 14. Those planning to graduate at the closing of the fall semester 2006 must take the exam no later than October 2006. For more information call 677-3303.

Plan to graduate next year?

Undergraduates planning to graduate in fall 2006 must file a Graduation Evaluation form (Grad Check) between December 2, 2005 and March 3, 2006. Grad checks are handled in the Advisement Center.

Accessing advisement info

An Advisement Handbook provides invaluable information on Biology requirements and course equivalencies. The free handbook can be obtained in the Advisement Center or at *www.csun.edu/biology.*

Career information available

Career sheets are available in the Advisement Center. Each sheet describes career opportunities associated with the various Biology options.

The Changing of the Chairs

Dr. **Larry Allen** has taken over the duties of the Biology Department Chair, succeeding **Dr. Nancy Bishop**, who has elected to retire but will continue to teach part-time for a while longer.

Allen is an expert on marine fishes of California, having authored many dozens of technical articles with his students. He has also written for the general public, and has had extensive contracts in ecological and applied fisheries monitoring.

In his 25 years with the department, Allen has taught a very wide range of courses from general biology through human physiology, design and analysis of experiments, and population biology to pelagic organisms, ecology of marine fishes, and ichthyology.

In recent years he has had a large number of students doing research in his lab, and this will continue with the help of a post-doctoral scientist, **Dr. Mark Steele**.

Allen's past administrative experience is very extensive, involving inter-campus consortia (Ocean Studies Institute and Southern California Marine Institute) as well as directing such departmental functions as the graduate program. And he has led searches for many of the excellent faculty that now populate the department.

Some Cool Classes for Spring

After a successful first endeavor last year, **Dr. David Gray** will offer **Biology of Deserts** (BIOL 426) again this spring 2006. Says Gray, "The course offers a broad overview of the biology and natural history of the North American deserts. Because much of the learning will take place on extensive field trips—two on weekends, another extending over ten days during spring break—students must be comfortable living and learning outdoors." For additional information, see *http://www.csun.edu/~dgray/Deserts.html* and *http://www.csun.edu/~lumpee/Bio426*; the latter site has photos from last spring's class. Questions? Contact Gray at *dave.gray@csun.edu*.

Three graduate seminars are planned for spring. **Dr. Larry Allen** will offer Seminar in Ethology (BIOL 615D) on Mondays 6-9 PM. **Dr. Paula Schiffman** will teach a Seminar in Ecology (BIOL 615C) each Tuesday, 5-8 PM. And **Dr. Larry Baresi** will direct a Thursday, 6-9 PM Seminar in Microbiology (BIOL 655A).

Design and Analysis of Experiments

(BIOL 330/L) will be offered in spring but not in fall '06, so sign up next semester. "The class is not just for Environmental and Marine students," says the instructor **Dr. Paul Wilson**, "but also for anyone interested in actually doing science. It's a great opportunity to learn really useful skills skimmed over in other courses."

Dr. Maria Elena Zavala will teach **Plant Physiology** (BIOL 481/L), a course designed to provide students with an understanding of physiological processes in plants. "I plan to include exercises using the model plant *Arabidopsis*," says Zavala, "giving students hands-on experience useful both for understanding how plants work and for learning skills useful in biotech."

Electron Microscopy (BIOL 575/L), to be taught by **Dr. O. Tacheeni Scott**, offers a theoretical and practical treatment of electron microscopy (EM) as applied to cellular and histological imaging. Says Scott, "EM, the source of much of our current understanding of cell structure, offers imaging capabilities far beyond those available via light microscopy. In the lab portion of the course students will learn to use both the transmission (TEM) and scanning (SEM) electron microscopes, and will conduct individual research projects."

Catalina Island Marine Biology Semester Scheduled for Fall 06

Next fall, the marine faculty will offer four field classes onSanta Catalina Island. Students will spend the entire semester at the Wrigley Institute of Environmental Studies, where they will take Marine Invertebrate Zoology, Ecology of Marine Fishes, Marine Biological Processes, and Directed Research.

The courses will be taught by Professors **Peter Edmunds**, **Larry Allen**, **Mark Steele**, and **Steve Dudgeon**. Applications are available at *http://osi.scmi.us/*.

Biology Club Gets Endowment in Memory of Professor Tom Reilly

The Biology Club has received a substantial gift from the Scheck family, in memory of the late CSUN Professor of Journalism, **Dr. Tom Reilly**. The gift, which consists of $4,800 being held by the University Foundation, and a separate $10,000 endowment being held in a charitable gift fund, was made with the stipulation that the funds and interest be used by the Biology Club students.

In setting up the memorial accounts, Ms. Scheck wrote to Dr. Stan Metzenberg, the Biology Club Faculty Advisor: "Because my husband and I have biology backgrounds and because biology was my 'newsbeat' while I was a journalism student at CSUN – and because Tom loved nature and knew so much about it, we thought we would have something set up in biology."

Emeritus professor Reilly passed away May 7, 2002 following a long battle with prostate cancer. Professor Reilly, 67, arrived on campus in 1969 and served as Journalism Department Chair from 1981–1985 and again from 1990–1998.

Besides their generous monetary gifts, Ms. Scheck and her family have also donated to the Club a large art book entitled "Medicine, an illustrated history" that is being held in the Biology Office.

Thanks to Ms. Scheck and her family, the CSUN Biology students will have funds to organize meetings with visiting speakers, sponsor club activities, and enjoy food and refreshments at their meetings. Students interested in joining the Biology Club may obtain information by writing to *stan.metzenberg@csun.edu*, or they may watch the bulletin board outside of the Advisement Center for meeting announcements.

Biology Honors Program

The Biology Honors Program is a great way for undergrads to get research experience to enhance their academic careers and better prepare them for graduate and professional schools. Students admitted to the program conduct a senior project under the direction of a research sponsor and submit the final thesis to the Honors Committee for approval.

Biology Honors students will have a special notation on their transcripts and be publicly honored at the Department's honors ceremony during commencement week. In addition, Honors students will receive a certificate acknowledging their achievement.

To be considered for admission to the program, an applicant must have completed 90 units of college work, hold a GPA of 3.50 both in the major and overall, and have a faculty sponsor. If interested, email **Dr. Cheryl Hogue**, Program Director, at *cheryl.hogue@csun.edu* or call her at 677-3349.

Botanic Garden Hosts Twilight Party, Offers Tours

Each year the Botanic Garden hosts the annual Twilight Garden Party featuring food, wine tasting, live music, botanical art, tours of the garden and an ever-popular raffle. This year's party, attended by more than 400 guests, drew a diverse assemblage of folks ranging from university students, faculty and administrators to garden society and local community members.

According to **Mr. Brian Houck**, Botanic Garden director, "The event brought in more than $3,800 to be used to improve the garden. Some will go towards creating badly needed labeling of the plants, especially those studied by classes."

Houck also acknowledged the contributions of the various sponsors, volunteers, wineries, and friends who worked together to make the party so successful, and extended "...a special thanks to those who bought raffle tickets and participated in the silent auction," the sources of most of

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—de Bellard, con't from p. 1—

of the City University of New York. There, working with Dr. Marie T. Filbin, she learned cell culture techniques and surgical procedures, presented at many international meetings, and was awarded her first grant, a NIH Minority Supplement. Her doctoral dissertation was aimed at finding the receptor for myelin associated glycoprotein (MAG). "The MAG receptor was the holy-grail of the myelin field," says de Bellard, "and although I never identified it, my research turned out to be critical in its eventual discovery." Another part of her dissertation consisted of looking at a variety of aspects of MAG's inhibition of axonal regeneration.

After completing her Ph.D., de Bellard took a post-doc at Caltech. "This was a significant change in direction: from studying rodent adult nervous system and axonal regeneration, to the earliest stages of nervous system development and cell migration in chicks." Thus, de Bellard brings to CSUN a very broad expertise in neurophysiology and development.

De Bellard is in the process of establishing her research at CSUN, where she expects to focus on cell migration during development and the parallel between neural crest migration and cancer. Students interested in working in her lab are encouaged to talk with her. She can be found in CS 3216B, or contacted via email at *maria.debellard@csun.edu*.

—Karels, con't from p. 1—

ground squirrel, that also live in the northern parts of the boreal forest. "I showed that squirrel populations are synchronized with the cycle of the hares and, like the hares, are limited by an interaction between food supply and predators, such as lynx, coyotes, and great horned owls, all of which cycle in response to hares."

Continuing to work with arctic ground squirrels, in his Ph.D. studies Karels addressed the controversial topic of population regulation. "The completion of the Kluane project experiments in 1996 produced a large range of densities of squirrel populations, providing a unique opportunity to test theories of population regulation." By following the squirrels as their numbers returned to normal he demonstrated that their populations are regulated both by density-dependent factors such as survival during hibernation and reproduction caused by food competition among females, and by density-independent factors like year-to-year changes in weather. "Ecologists have argued for a hundred years about whether density-dependence or density-independence is more important in regulating populations," says Karels, "but at Kluane both are important and operate concurrently."

After completing his Ph.D., Karels studied hoary marmots, large ground squirrels that live exclusively in high alpine meadows of northwest North America, as a part of two post-doctoral appointments. In the first, based in Edmonton, Alberta, he studied the role of climate variability and sociality on the marmots in the Yukon. In the second, at the University of British Columbia, he used his earlier marmot work as a model for assisting in the recovery of an endangered and closely related species, the Vancouver Island marmot. In the latter study he showed that "Marmots are cooperative breeders. That is, the older offspring remain with the family group and by doing so help younger marmots thermoregulate and survive hibernation."

A third post-doc found Karels in Auburn, Alabama, where in his spare time he "learned about the culture of football" but focused his academic work on Columbian ground squirrels in southwestern Alberta. Specifically, he sought to determine how female squirrels allocate resources between their own needs and that of their offspring. "The research is ongoing," says Karels, "but it appears that females in good condition after hibernation save their resources as insurance against bad weather during late lactation when the expected demand by their offspring is greatest." He goes on, "There's an interesting sex-bias in all this. When a mother is in poor condition, daughters are more likely to die than are sons, perhaps because producing sons that will disperse is better for a mother than producing daughters who remain in the colony and compete with her."

Karels plans to continue his research in Alberta and the Yukon, but eventually much of his research will be local. He says, "Comparisons among species is a valuable approach in understanding the evolution of life-history traits, so I'm keen on getting students working on the ecology of local squirrels."

Karels can be contacted via email at *karels@csun.edu*. His office is LO 1312.

—Malone, con't from p. 1—

under their control make products or not. "Genetic" factors refer to regulatory elements that interact via DNA sequence and thus may be modified by mutations. "Epigenetic" factors do not involve changes in DNA sequence, but instead utilize chemical modifications to DNA such as methylation.

In her research, Malone has discovered both genetic and epigenetic factors that influence differentiation of white blood cells important in immunity. Her work is especially important because these white blood cells, called B lymphocytes, may become cancerous as a result of changes in the regulation of the genes she is studying.

Malone plans to continue working on gene regulation, which she fondly refers to as "promoter bashing." She encourages prospective students to contact her either via email (*cindy.malone@csun.edu*) or in her office, EH 2200, after she returns to campus mid-semester. Interested students can see a list of selected papers she has authored at *www.csun.edu/~cmalone*.

the funds. For pictures of the TGP, visit *www.csun.edu/botanicgarden*.

This semester, the Botanic Garden has begun hosting informal tours for the general public on the first Thursday of every month. If interested, bring a bag lunch to the garden's center grassy area at noon. The tour will follow a discussion of what's current in the life of the garden. More information is available from the garden staff at (818) 677-3496.

A Call for Student Help

Dr. Larry Allen's Near Shore Marine Fish Research Program needs students to help in the field. Students who volunteer will gain extensive fieldwork and valuable research experience on professional projects. Interested students should contact **Brent Haggin** at 677-4037 or in the fish lab (MG 4112).

Want to do research on viruses of our most distant relatives? With the re-isolation of one of two known methanogen viruses and one of just five non-halobacterium Archaea viruses, research in **Dr. Larry Baresi's** lab is shifting its focus to comparative viral research. Baresi has openings in his laboratory for additional interested students. Says Baresi, "My work on extremeophile isolation and characterization will continue but in a limited fashion."

Over winter break, **Dr. Mike Summers** will work at UC Davis using DNA microarray analysis to discover new genes in the cyanobacterium, *Nostoc*. Consequently, in spring he will need skilled students to help him build the GFP fusion plasmids needed to confirm the genes' cell-type specificity. He can be contacted at *michael.l.summers@csun.edu*.

The Evolution Report Evolves

The Evolution Report is like a radio show but on the web. Its host, **Dr. Paul Wilson**, says, "Our idea was that students could download it onto their iPods or whatever and listen to it while they're commuting or like whatever, dude." It can also be listened to directly on a computer.

Over the summer, Wilson and interviewees added episodes about heritability, phylogenies, the history of life, single-locus evolution, mating systems, and levels of selection, bringing the offerings to 13 hours. It can be accessed at *www.csun.edu/~hcbio028/EvolutionReport.html*.

News from the CASA Office

Math to be infused into Biology curriculum

Dr. Maria Elena Zavala received a major grant that will fund a careful analysis of the Biology curriculum, deciding what skills in math, computer use, and data analysis are most useful for biologists, and finding (or writing) engaging exercises to train the next generation of biologists. Says Zavala, "The idea is not to add an additional burden of course work, but to improve existing courses."

A faculty committee will assess what is taught in Biology's classes and what students are learning. According to Zavala, "Students may be asked to take assessment tests just to provide a baseline for measuring teaching effectiveness. Faculty will be canvassed also, and the committee will study teaching materials such as lab manuals and course packets."

The committee will also be asking for student input. Says Zavala, "Students who know of fun and enlightening exercises for teaching quantitative skills are encouraged to contact one of the committee members." The committee is composed of **Drs. Lisa Banner**, **Jennifer Matos**, **Stan Metzenberg**, **Paul Tomasek** and **Paul Wilson** of the Biology Department and **Dr. Alberto Candel** from Math.

Students do research elsewhere

Over the summer several MARC students participated in workshops and research experiences at other institutions, a part of the requirements for MARC program participants. Among those who expanded their academic horizons were: •**Patricia Lopez**, who attended an extended workshop on Biotechnology; and •**Jessieka Mata**, who spent her summer at UC Davis.

According to Dr. Maria Elena Zavala, director of the MARC program, "Summer internship information for the coming summer will begin to arrive in the CASA office in late fall. These summer internships offer the opportunity to participate in a research project at a Ph.D.-granting institution or at a national laboratory such as JPL, NCI or NIEHS."

Many summer programs include financial support, and all are targeted for students who want to enter a Ph.D. program. Students are encouraged to visit the CASA office, EH 2128.

Programs increase representation of under-represented groups in biomedical sciences

CSUN has several programs aimed at increasing the number of minority students in the sciences. Two of them are the MARC program, for undergrads, and the Bridges-to-the-doctorate program for Master's students. Both are funded by the NIH.

This year's new MARC students, selected last May, include **Jose Carcamo, Jennifer Nnoli, Veronica Lopez, Cassandra Williams, Tamara Johnson, Maynor Gonzalez, Carla Barbalace,** and **Kemella Sillah.**

Many of the students mentioned in other articles who have published or presented their research and who have gone on to Ph.D.-granting universities were funded by one (or more) of the programs. If you are a member of an under-represented group and are interested in going on to a Ph.D., visit the CASA office (EH 2128).

Biological Ecology and Evolution Reading Group Meets

This fall graduate student **Raymond Hernandez** will continue in his elected post as President of the BEER group. Graduate students **Jolene Pucci** and **José Monzón** will serve as Vice President and Treasurer, respectively.

The purpose of the BEER group is to provide interested students and faculty a forum for discussing the literature and project ideas in ecology and evolution. Through these interactions, students become familiar with the literature and hone their critical thinking and reading skills.

All students and faculty are welcome. The club meets Fridays at 3:30 PM in LO 1322. Pizza and soda are available at meetings for a small charge. You can get all announcements of beer-g events by sending an email to *majordomo@csun.edu* with your message being "subscribe beer-g."

New Cohort Accepted to Genetic Counseling Program

Genetic Counselors are trained in the areas of genetics and counseling, and they help families who have members afflicted with genetic disorders, or who are at risk for having genetic disorders make difficult decisions about genetic testing, family planning and medical treatment.

The class of 2007 includes **Alisara Ateerat**, **Tonya Harrel**, **Claudia Hernandez**, **Carin Huizenga**, **Bret Hutchinson**, **Mitchel Pariani**, **Samantha Scherer**, **Erin Yokoyama**, and **Lindsay Warner**.

Genetic counseling students take many courses alongside Biology students, as well as courses just in genetic counseling, and they take courses in the Departments of Educational Psychology and Counseling and Special Education. Their culminating experience is a thesis.

Students who would like to know more about the program should contact the program director, Dr. Aïda Metzenberg, in MG 4105A.

Where did they all go? A look at Biology's Alumni

The long-gone

Former graduate student, **Dr. Jamie Kneitel** (M.S. 1997; now an assistant professor at CSU Sacramento), recently came back to CSUN where he presented his research at this semester's Biology Colloquium. Dr. Kneitel reported that his M.S. experience at CSUN prepared him well for the rigors of doctoral study.

Two other former CSUN students will present their work here in coming weeks.

The recently departed

Two former students from Dr. Robert Carpenter's lab are now in Ph.D. programs: **Jacqueline Padilla-Gamino** is in Oceanography at the U of Hawaii; **Graham Ferrier** is in Ecology and Evolution Biology at UCLA.

From Dr. Larry Allen's lab **Matthew Salomon** entered a Ph.D. program at U of Florida, and **Joshua Lindsay** was hired as a Fisheries Biologist under contract to the National Marine Fisheries Service in Long Beach.

Several of Dr. Steve Oppenheimer's students have landed fellowships: **Eileen Heinrich** for UCLA's Ph.D. program; **Lilyanne Welty** for UC Santa Barbara's Ph.D. program; **Maribel Alvarez** for UCLA's Ph.D. prep program; **Hesam Hekmatjou** for Harvard Dental School; and **Karina Garcia** for West Virginia U's Ph.D. program.

Dr. David Gray's erstwhile grad student, **Amanda Izzo,** started a Ph.D. program at the U of Michigan, where her beau simultaneously entered a different Ph.D. program—some coordination that!

Dr. Fritz Hertel's former student, **Mike Brewer**, is on a Ph.D. program at the U of Nevada, Las Vegas.

From Dr. Michael Summers' lab, **Peter Holmquist** entered a Ph.D. program at Arizona State U; **Natasha Koto** has entered the USC School of Pharmacy; **Julieta Aguilar** began a Ph.D. program at UC Berkeley in Microbiology; and **Zara Summers** is spending this year in Aix-en-Provence as an exchange student.

Others entering Ph.D. programs include **Omar Escamilla** from Dr. Lisa Banner's lab and **Evelyn Soriano** from Dr. Larry Baresi's lab, both going to UC Irvine.

Biology Department Welcomes Newest Master's Degree Cohort

Every year the Biology Department welcomes a new crop of graduate students, some who have finished a B.A. or B.S. at CSUN, many others graduates of other universities. This year's M.S. neophytes, in no particular order, include: •**Dawn Bailey**, **Jessica Tuharsky**, **David Wang**, and **Steven Grenias**, all of whom will be working with Dr. Larry Allen and his post-doc Dr. Mark Steele; •**Geoffrey DeJaynes** and **Shieva Davarian** who have entered Dr. Lisa Banner's lab; •**Paul Narciso** and **Sophia Dube**, both joining the lab of Dr. Larry Baresi.

Also joining the graduate ranks are: •**April Ochoa** and **Eleni Kontogiannis**, inductees into Dr. Randy Cohen's lab; •**Nicole Christiansen**, a recruit into the lab of Dr. Steve Dudgeon; •**Hollie Kerr** and **Nancy Muehllehner**, who join Dr. Peter Edmunds' research team studying reef corals in Moorea and the Virgin Islands; •**José Monzón** and **Chris Rodriguez**, who'll be working with Dr. Robert Espinoza; •**Jessica Dooley**, a recruit into Dr. Fritz Hertel's lab.

Completing the list of new M.S. students are: •**Lisa Zung**, working with Dr. Jennifer Matos; •**Deborah Ritter** who's entering Dr. Rheem Medh's bailiwick; •**Larissa Kruchowy**, **Nomiki Kolettis**, **Brandon Rainbeau** and **Azalia Contreras**, who swell the ranks of Dr. Steve Oppeheimer's lab; •**Lut Hang (Alex) Li**, working with Dr. Paula Schiffman; •**Daniel Nelson**, a recruit to Dr. Michael Summers' research team; and •**Salman Haque**, who will be co-advised by Drs. Summers and Baresi.